

Oronogo-Duenweg Mining Belt Site Newton County Mine Tailings Site Jasper & Newton Counties, Missouri

Site History and Cleanup Activities

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Region 7

Site History

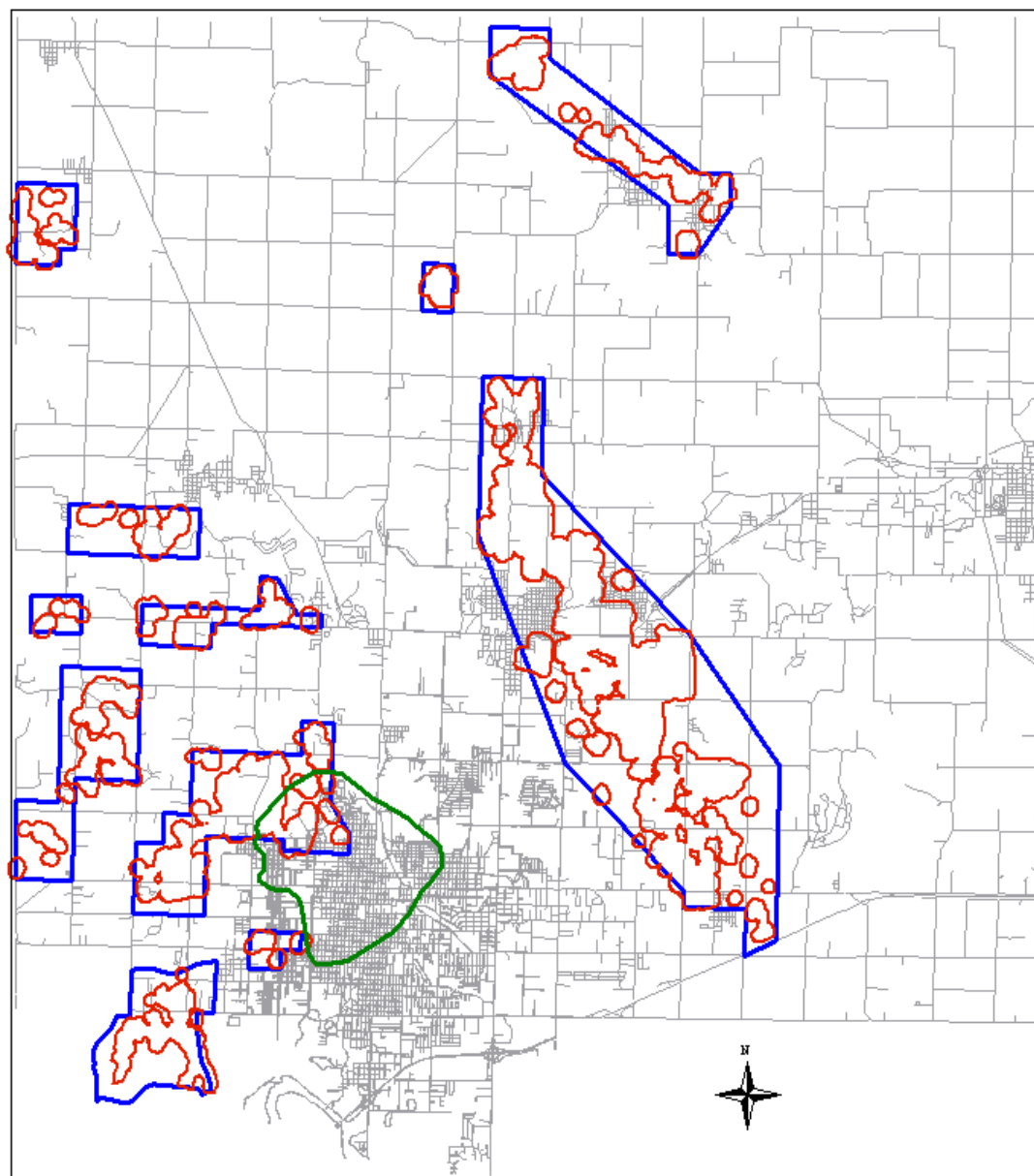
- Counties are part of the Tri-State Mining District which covers 2,500 square miles in Missouri, Kansas, and Oklahoma
- Lead and zinc mining occurred from 1850's to 1970's
- Over 200 million tons of crude ore produced
- Over 500 million tons of wastes left on site

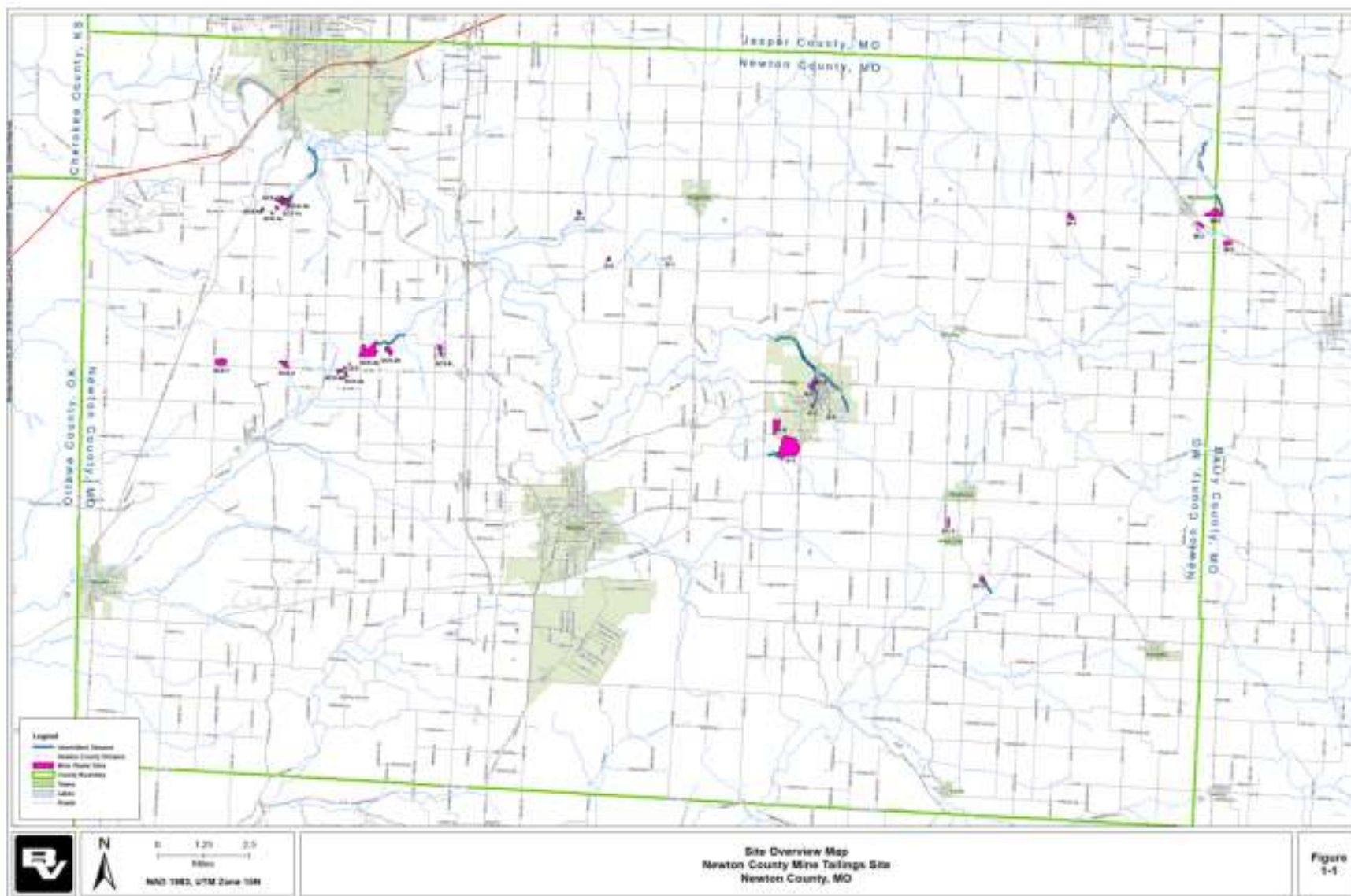
Site Description

- Jasper County Site covers 270 sq. miles
 - 10 million tons of wastes remain on 9,000 acres
- Newton County Site cover 300 sq. miles
 - 3 million tons of wastes remain on 300 acres
- Heavy metals contamination identified above acceptable levels in
 - Mining wastes
 - Soil
 - Ground water
 - Streams

Jasper County

Mine Waste Areas
and
Smelter Zone



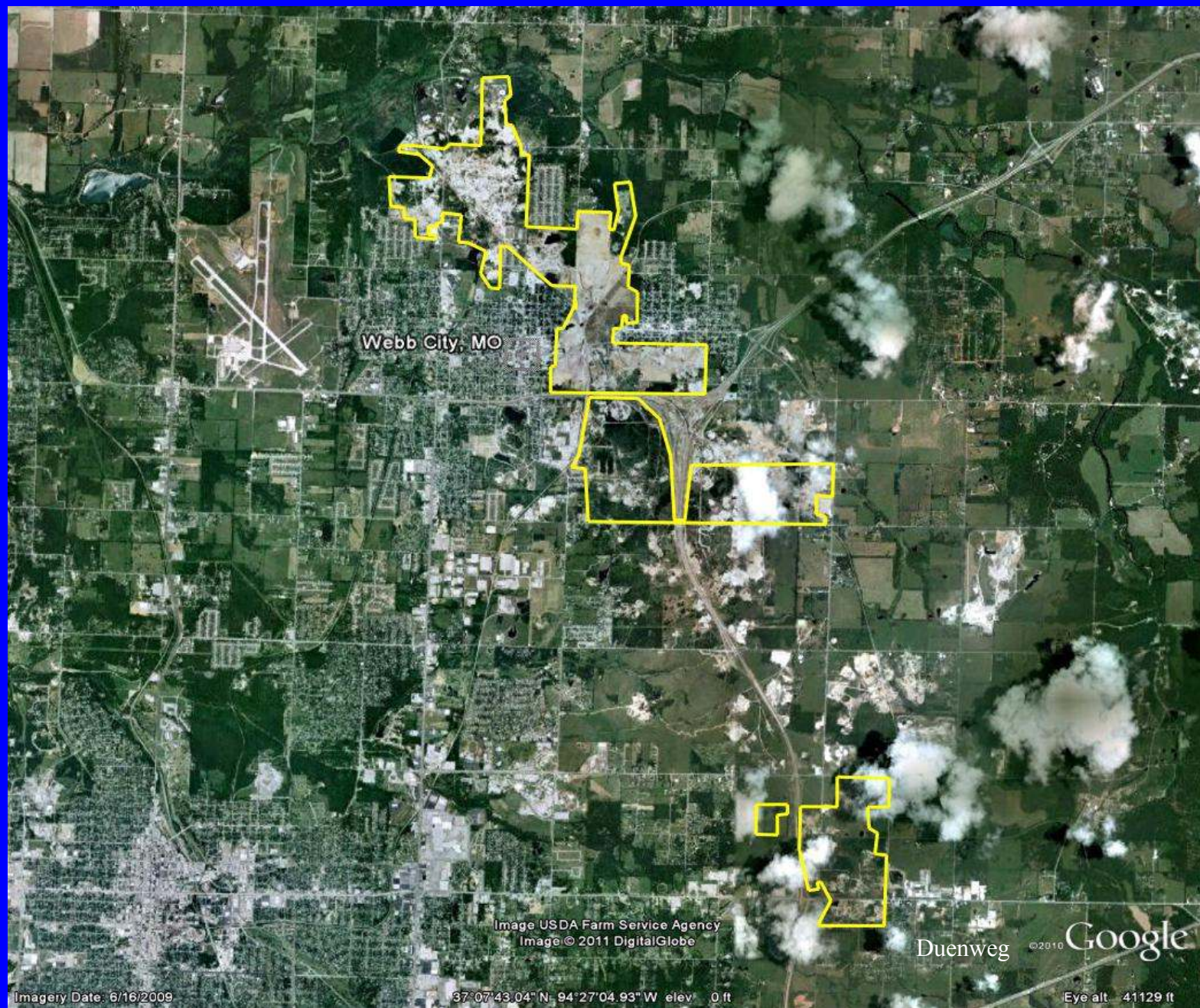


Site Risks

- Studies found high percentage of children with elevated blood-lead levels from exposure to soil
- Lead and cadmium in private water wells above the EPA drinking water standards
- Metals in surface water streams above Federal water quality standards, stream life impaired
- Metals in site soils and mining wastes exceeding safe levels for animals

Cleanup Actions in Jasper & Newton Counties

- Residential yard soil contamination removed at over 3,000 properties
- Installed over 200 miles of public water supply mains to over 1,500 homes with contaminated private wells
- Replaced over 200 contaminated shallow wells with new deep-aquifer wells
- Remediated 1,800 acres of mine waste and 4 miles of streams in Jasper County
- Remediation of mine wastes in Newton County to start Fall of 2013



Mine Waste Cleanup Action

- Excavate and dispose mine wastes in subsidence pits, mine shafts, and above ground repositories
 - Excavated mine wastes, contaminated soil, and sediments are disposed in pits and shafts, or above ground repositories, then covered with soil cap
 - Excavated areas are re-contoured to promote proper drainage, then re-vegetated





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Before filling







Before cleanup



After cleanup

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After cleanup

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After cleanup

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Before cleanup



After cleanup

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Before cleanup



After cleanup

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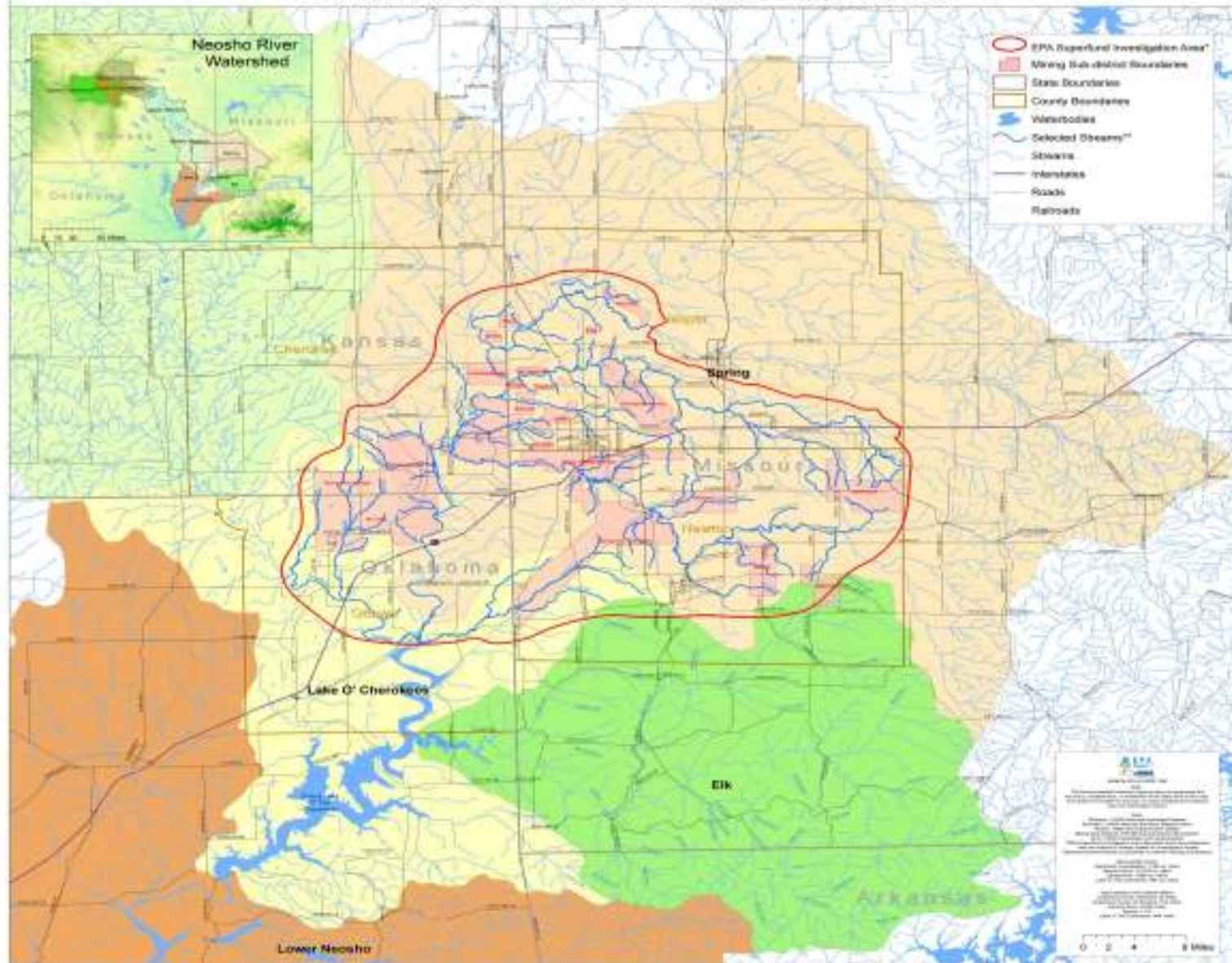
Jasper County Mine Waste Cleanup Progress to Date

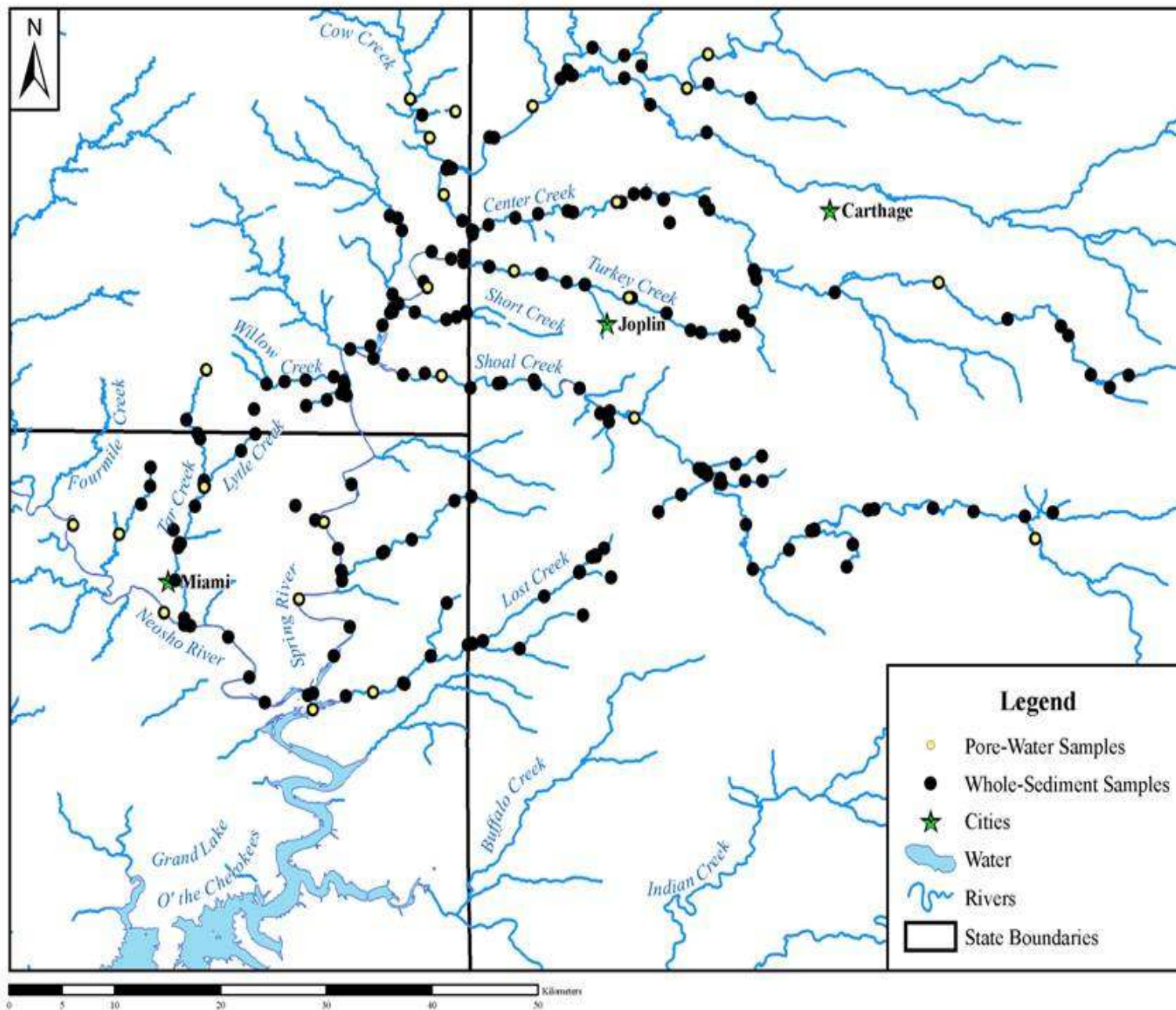
- Over 1,800 acres remediated
- Approximately 4 miles to tributary streams restored
- Design completed on an additional 800 acres
- Approximately 7,000 acres of waste remain
- Assessment of perennial streams underway

Tri-State Watershed Studies

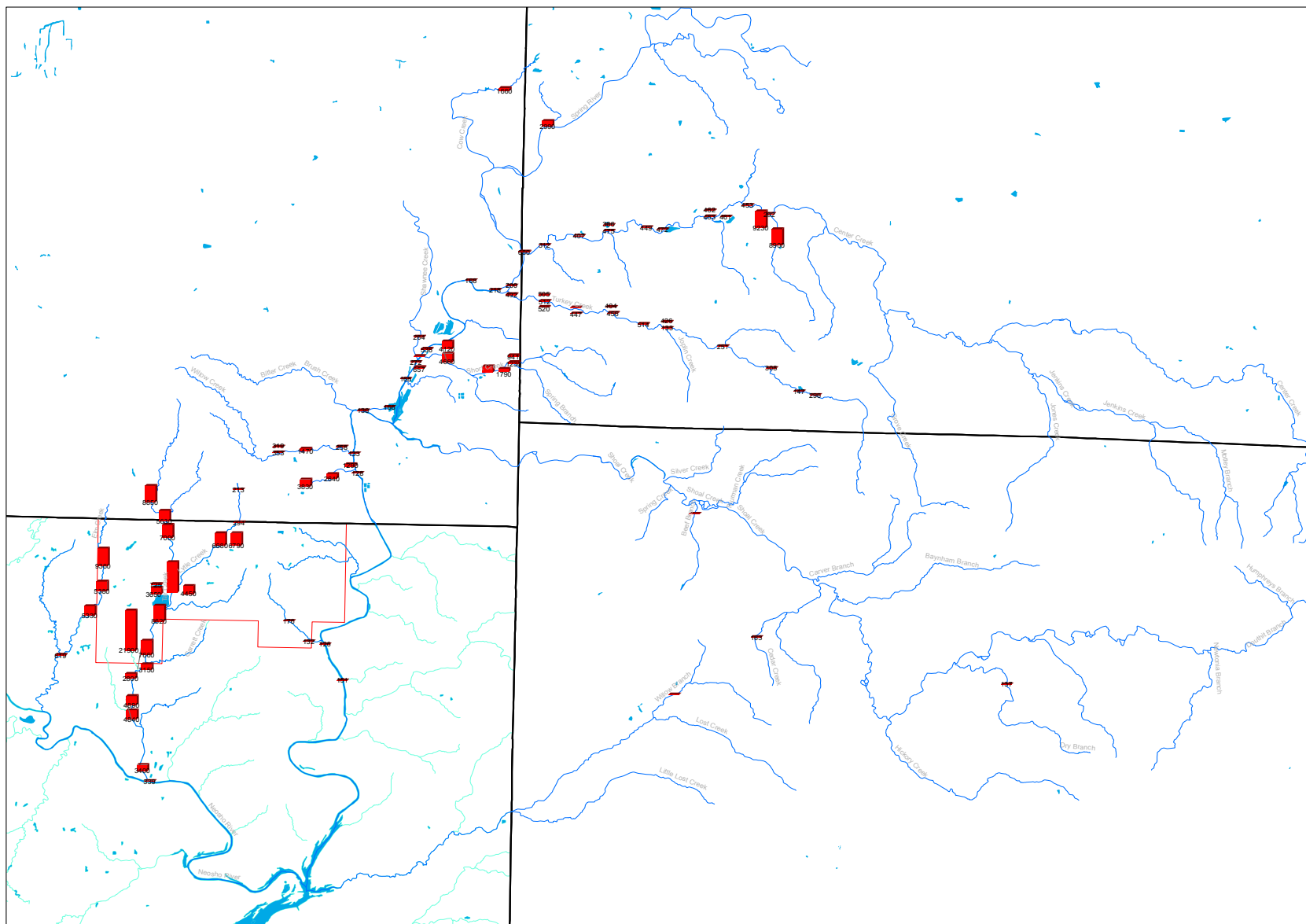
- Streams in the Spring River Basins flow through 3 states and 4 Superfund sites
- Most streams within the basin exceed state and federal water quality standards
- Stream sediment metals concentration exceed toxicity values
- Mine waste source areas are undergoing cleanup, but will require decades to complete.

Grand Lake O' The Cherokee Watershed

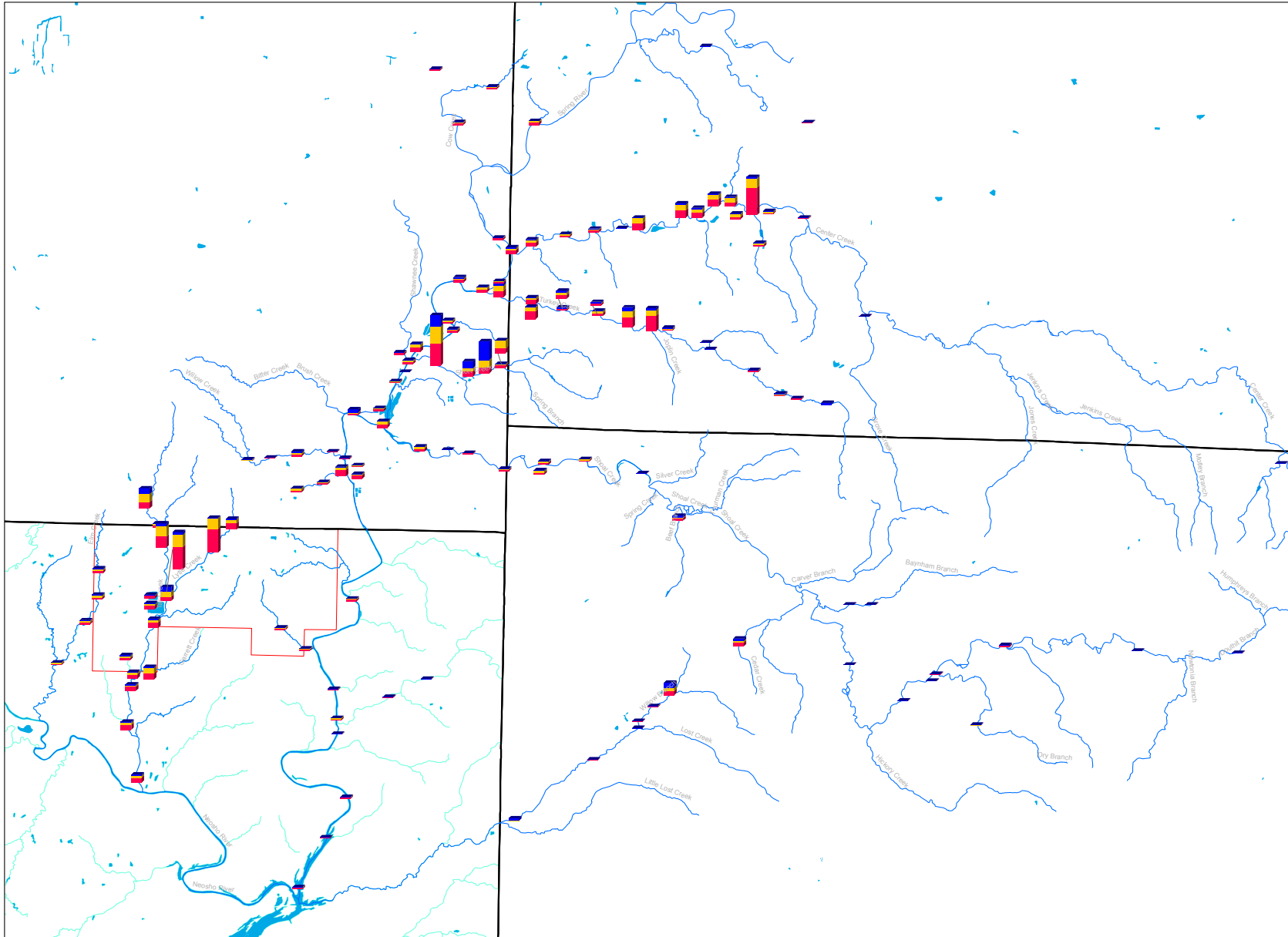




Zinc in Surface Water



Zinc **Cadmium** **Lead** > Sediment Criteria



Tri-State Watershed Studies

- Data compilation (ongoing)
- Toxicity studies (completed)
- Risk assessment (completed)
- Modeling/monitoring (ongoing)
- Cleanup prioritization process/risk management (at completion on modeling)

Questions

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